

Unit 5:

Designing Mobile Applications – Visual Design



Mobile Application Development (MAD)
CCIT4059, 2025-2026

Outline

- Designing a Mobile App
 - Visual Design
- Visual Design Elements
 - Line, Shape, Form
 - Texture, Space
 - Colour
 - Type
- Visual Design Principles
 - Unity
 - Focus / Emphasis
 - Visual Hierarchy
 - Colour Scheme

Designing a Mobile App

- Developing a mobile app (application) goes through the software development cycle, from project initiation to product delivery and maintenance
- Despite of the comparatively-shorter development cycle for mobile apps, a successful mobile app starts with a successful design
- Design may start even before project specification and plan are finalized

Designing a Mobile App

- While there is no universal definition of “Design” like many other terms, “Design” is closely associated with two aspects:
 - design process (the activity): “the art or action of conceiving (to image something) of and producing a plan or drawing of something before it is made”, or actually executed
 - design outcome (the output): “a plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made”, or actually executed

Designing a Mobile App

- Fundamental nature of “Design”:
 - Goal-driven (application-specific, user-centered):
 - unlike fine-arts which encompass art forms developed primarily for aesthetics, self-expression
 - Creativity and innovation are highly desired
 - Emphasis given to newness, uniqueness, unexpectedness, surprise
- As such, Designing demands Conceptualization and Visualization

Designing a Mobile App

- Conceptualization
 - Explore and generate (many) general & abstract ideas / concepts for solving a design task
 - Be creative, original, innovative, revolutionary
- Visualization
 - “Visually” generate (realize) and explore refined, more specific and concrete solutions for a design task

Designing a Mobile App

- Apart from developing proper computational algorithms and data structures in the technical aspect, two main design aspects in designing mobile applications are:
 - Visual Design
 - Visual content is still the dominant medium form of information to be perceived by end-users
 - Other forms are also important, e.g. audio
 - User Interface (UI) Design
 - Focus on how end-user interacts with computing devices efficiently and effectively (and joyfully)
 - Much related to Human-Computer Interaction (HCI)

Visual Design

- Visual design involves
 - Integration of design concept and *design elements*, based on *design principles*
- Sources of visual design elements:
 - Text: computer-generated or hand lettering
 - Photographs (raster / bitmap): custom or stock
 - Illustrations (vector graphics): custom or stock
 - Animations and Videos (with temporal axis), simply a sequence of “image” frames displayed

Visual Design Elements

- Different types of Visual design elements, including:
 - Line,
 - Shape,
 - Form
 - Texture,
 - Space
 - Colour
 - Type (Text)
 - Others
 - Animation and Video
 - Sound

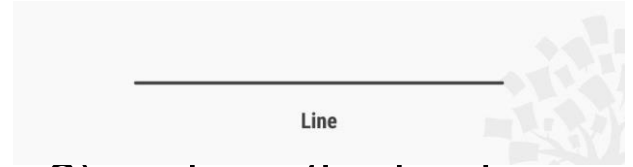


Visual Design Elements

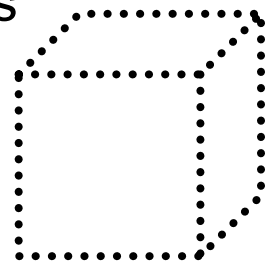
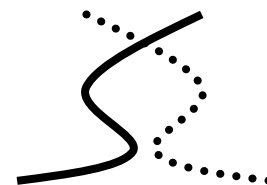
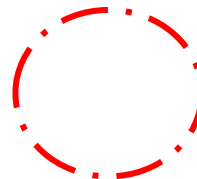
LINE	A line is an identifiable path created by a point moving in space. It is one-dimensional and can vary in width, direction, and length.	
SHAPE	Shape and form define objects in space. Shapes have two dimensions, height and width, and are usually defined by lines.	
VALUE	Value describes the brightness or darkness of color. a gradient is a series of values from darkest to lightest.	
FORM	Shape and form define objects in space. Forms exist in three dimensions, with height, width, and depth.	
SPACE	Space in a work of art refers to a feeling of depth or three dimensions. It can also refer to the artist's use of the area within the picture.	
TEXTURE	The surface quality of an object that we sense through touch: hard, soft, rough, smooth, hairy, leathery, sharp, etc.	
COLOR	Reflected light, Organized on a color wheel with 3 primary colors, 3 secondary colors and 6 intermediate colors.	

Visual Design Elements

(Line)



- Lines are strokes connecting points (min. for 2) and are the basic element in visual design.
- Lines may help coordinate details, describe forms (and repeat to form textures), indicate movement, and express emotions depending on their form, weight, duration, and meaning.
- Lines could be actual lines or implied lines
- Horizontal lines suggest stability, peacefulness or calmness
- Diagonal lines imply tension, movement or directionality
- Can be used to define a shape or form that separates from its surrounding space
- Basic properties of line & curve
 - Length, Width, Style, Colour

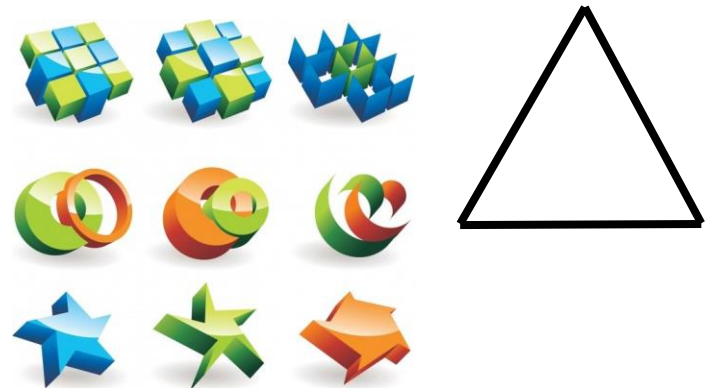


Visual Design Elements

(Shape)

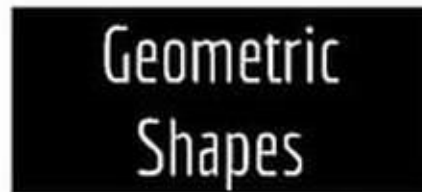


- Shapes are better interpreted in graphic design as fields, structures, or figures bounded by a border or closed diagram. Any graphic artist should be familiar with two kinds of shapes: linear and organic.
- Shapes are self-contained areas, usually formed by lines (although they may also be formed by using a different colour, value or texture). A shape has two dimensions: length and width.
- Fundamental / geometric shapes include circle, square, and triangle
- Organic or free-form shapes are irregular, and often suggest natural, dynamic or life-like
- Could be representational or abstract
- Could appear with depth or textured



Geometric shapes vs Organic shapes

- **Geometric Shapes:** Geometric shapes are shapes in 2D or 3D that follow strict rules and patterns. They are usually simple, perfect, and precise, like squares, circles, and triangles. They have clear lines and edges, and you can measure them with numbers.
- **Organic Shapes:** Organic shapes are shapes that you find in nature (symmetrical and asymmetrical). They are not perfect or precise but are freer and flowing, like the shapes of clouds, leaves, or rivers. They don't have clear lines or edges, and it is difficult to measure them easily with numbers.



Visual Design Elements (Form)

- Form is an enclosed area clearly set off from others, with depth information (3D)
- Like shape, forms have height and width, and can be either geometric or organic
- The forms are found in sculpture and architecture exist in real space
- In Graphic Design, forms could be produced with implied depth information, such as shading and shadows



Visual Design Elements (Texture)



- Texture is the surface quality of an object.
- Texture can be created by a repeated pattern of lines, or by using tiled images of textures. Above, the diagonal lines add a 'grip' effect to an otherwise 'smooth' rectangle.
- Textured objects may suggest a powerful emotional response in the viewer
 - Actual Texture is tangible (*touch*): When making contacts with an object, our body registers sensations of its actual texture: rough, smooth, sharp, hard, and soft
 - Visual Texture refers to simulated texture: Use lines, colours, shadings, patterns, and other design elements to create the illusion of various textures



Visual Design Elements (Space)

- Space is the area around the elements in a design. It can be used to separate or group information. Use it effectively to give the eye a rest, define importance and lead the eye to where you want it to travel.
- Space is the area (or volume in 3D) into which designers place shapes, forms and other composition elements
- Appropriated space among elements is desired
- To produce 3D space perception in 2D graphics, different techniques could be used, including Overlapping, Linear Perspective, and Atmospheric Perspective

Visual Design Elements (Space, 3D)

- Overlapping Technique
 - Nearby objects are placed in front of more distant objects, obscuring part or all the distant objects
- Linear Perspective (Relative Size)
 - Objects in longer distance appear smaller than they are



Visual Design Elements (Space, 3D)

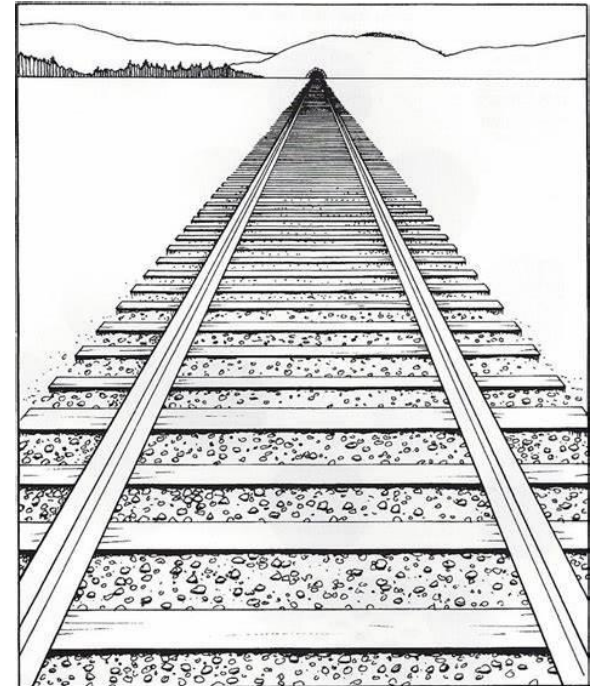
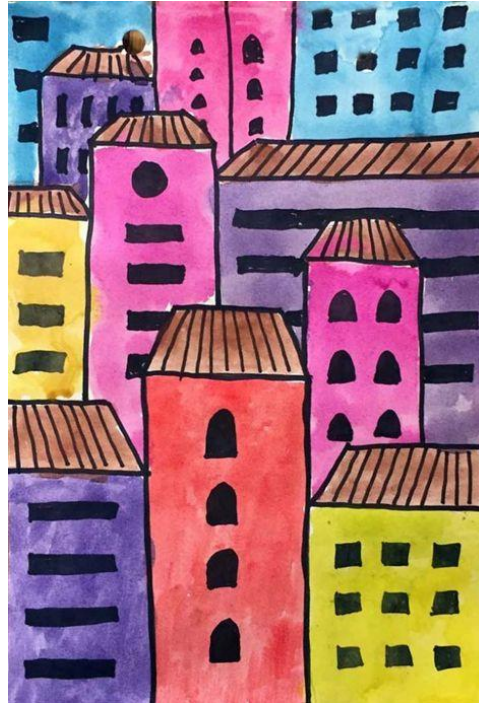
- Atmospheric Perspective
 - Create the illusion of depth through various techniques to simulate effect that the atmosphere has on the appearance of an object when viewed from a distance
 - E.g. changing colour saturation of an object, its fine-details and its contrast against ambience background (all decrease with increasing distance)



Visual Design Elements

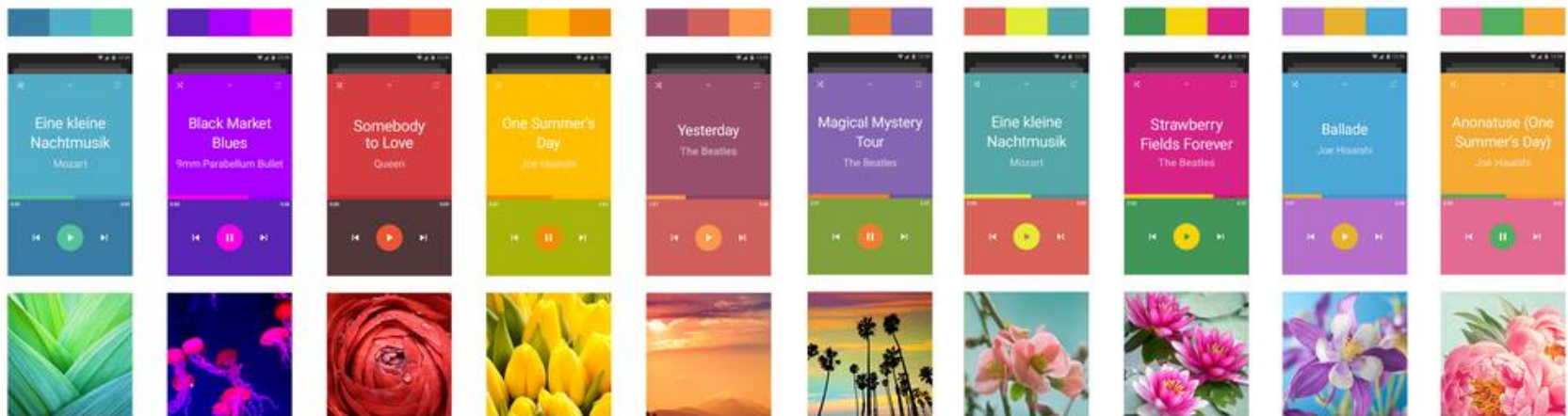
(3D Space perception in 2D)

- Produce 3D space perception in 2D graphics, different techniques could be used. What are they?



Visual Design Elements (Colour)

- Color is one of the most obvious elements of design, for both the user and the designer.
- It can stand alone, as a background, or be applied to other elements, like lines, shapes, textures or typography.
- Color creates a mood within the piece and tells a story about the brand.
- Every color says something different, and combinations can alter that impression.



Visual Design Elements

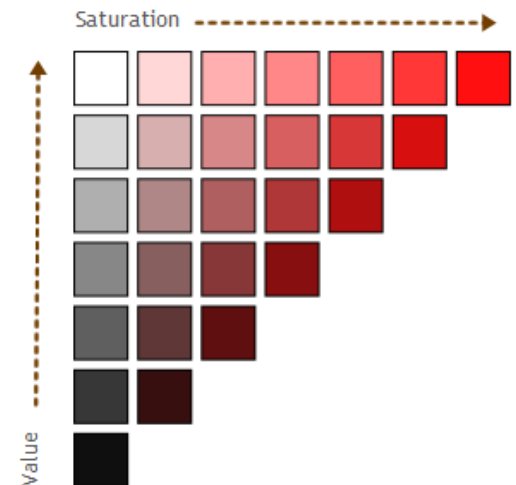
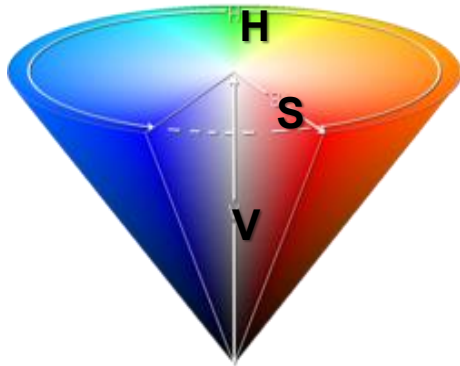
(Colour)

- The RGB (red, green, blue) colour model is the most popular way to mix and create colours.
- If you deal with commercial printers, you know about CMYK (cyan, magenta, yellow, key).
- Unlike RGB and CMYK, which use primary colours, HSV is closer to how humans perceive colour. You might have noticed HSV is commonly used in the colour picker of graphics software

Visual Design Elements (Colour)

Colour in visual design in HSV model is often specified with:

- Hue (specific name of a colour)
 - E.g. red or green, blue or orange
- Saturation (purity, vividness or dullness)
 - E.g. a bright red or a dull red
- Value (Brightness, lightness or darkness)
 - E.g. a light red or a dark red



Visual Design Elements (Type)

- Typeface: A single set of letterforms, numerals, and signs designed to be unified by consistent visual properties
 - These properties create the essential character, which remains recognizable even if the face is modified by design.
- Use of type to add a message that would be otherwise challenging to create through the other elements



Headline

Lorem ipsum dolor sit amet,
consectetuer adipiscing elit,
sed diam nonummy nibh.

Subhead

Euismod tincidunt ut laoreet
dolore magna aliquam erat
minim veniam, quis nostrud.

HEADLINE

Lorem ipsum dolor sit amet,
consectetuer adipiscing elit,
sed diam nonummy nibh.

Subhead

*Euismod tincidunt ut laoreet dolore
magna aliquam erat volutpat. Ut wisi
enim ad minim veniam, quis nostrud.*

Visual Design Elements

(Others: Animation and Video)

- Unlike conventional visual / graphic design, designing mobile apps often embeds motion elements, the visual content with temporal information including Animation and Video
- Animation and Video both create illusion and perception of motion
 - Basically, they are presenting “motion” with a series of frames (still images) containing “changing” objects / scenes in a rate which is fast enough to fool us to “see they are moving”
- Motion elements often draw much attention compared to static ones

Visual Design Elements

(Others: Animation and Video)

- Animation is generally related to the artificially created scenes of motion, with changing graphic images (e.g. even static objects of changing colors)
 - Animation is often used to simplify and illustrate complex and visualize concepts, which are difficult to capture in our real scenes
- Video captures scenes of our real world, and provides a level of realism not possible with animation or still images
 - However, video generally requires higher requirements, e.g. in terms of processing power, bandwidth, and storage

Visual Design Elements

(Others: Sound)

- Even though audio / sound contents provides important message in another non-visual dimension, it is often overlooked
 - Sound is a powerful element which can stimulate emotional responses that visual elements cannot
 - Sound contents is often required to be synchronized with visual contents
- Sounds are either *content sounds* or *ambient sounds*
 - Content sounds are associated to information of the content, e.g. dialogue in a conversation and songs in a live concert
 - Ambient sounds help to convey messages and set the mood and atmosphere, such as background music, background sound patterns and special audio effects

Visual Design Principles

- Combine the visual design elements into compositions that have a specific style, form, and content, based on principles of design
- There are different design principles, including
 - Unity
 - Focus / Emphasis
 - Visual Hierarchy
 - Colour Scheme

Visual Design Principles

(Unity)

- Unity involves oneness or wholeness, when every part of the design work seems necessary to the composition as one whole united piece
 - In particular, mobile apps are normally interacted within limited area, no space for useless (or even less useful) elements in such a tiny page/screen
- Unity also involves consistency: for giving a sense of relationship among entities
 - Two types of Unity: Intra-page and Inter-page

Visual Design Principles (Unity)

- *Intra-page unity* is related to similar (consistent) elements and features in one design page/screen
 - E.g. when we repeat elements like color, direction, value, shape, or texture, typography, layout, or establish a style, we establish a visual connection or correspondence among the elements for unity



Visual Design Principles (Unity)

- *Inter-page unity*: Consistency perceived across different pages of a design work with more than one page/screen (e.g. most mobile apps)
 - This deals with the design that users encounter as they navigate from one page to another, and they know they are still working in the same app.
 - This provides consistency throughout the entire application work.



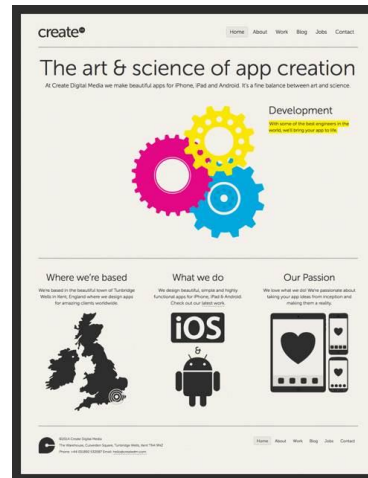
Visual Design Principles (Unity)

- For example, if we put a HOME button on the top left corner of a page to direct back to the home screen (or a PAUSE button as the same below), we should also use the *same* HOME button on the *same* location (top left corner) of other similar pages to do the same job (back to the home screen),
- Unless we have a good reason not to do so consistently.



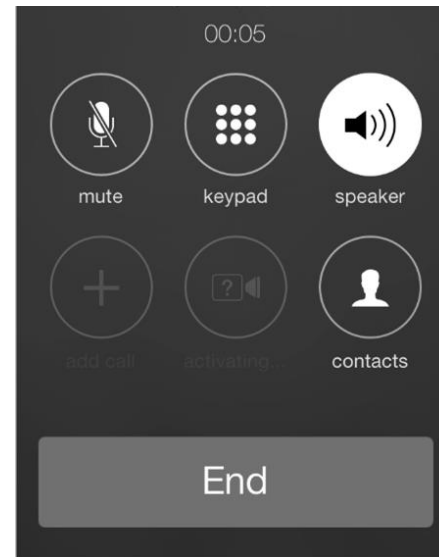
Visual Design Principles (Focus/Emphasis)

- There are almost always more than one design element appearing on a page or screen
- Focus or emphasis (the focal point or region) is seen first in a design work than others, and is mostly regarded as the most important part
- Make a focused design element visually more important than others and draw more attention – make it have larger visual weight
 - *Visual (optical) weight* of a visual element is its ability to attract the audience's eye



Visual Design Principles (Focus/Emphasis)

- To make a visual element in a design work stand out, we may use *contrast* (in colour, size, etc) or isolation to make one element different from the others in certain degrees
 - Manipulate visual weights to show users the relative importance of onscreen elements
- E.g. Relative difference:
 - Position, Size, Shape
 - Value, Colour
 - Motion (actual or implied)



Visual Design Principles

(Visual Hierarchy)

- Visual Hierarchy is formed by grouping and arranging elements according to their importance and emphasis
 - Form a priority order (hierarchy) of elements to help a viewer obtain information properly, in which more important elements are more emphasized (perceived first) than less ones
- A common 3-level hierarchy: dominant, subdominant, and subordinate
 - Dominant: The most important element(s) with most visual weight and emphasis
 - Subdominant: Elements with less emphasis than the dominant one, but more than the subordinate
 - Subordinate: Elements with least visual weight comparatively, often for less important supplements such as some textual information.
- However, things become problematic when applied to mobile apps with limited areas

Visual Design Principles (Visual Hierarchy)

- Visual hierarchy is the principle of arranging elements to show their order of importance.
- Designers structure visual characteristics (e.g. menu icon) so users can understand information easily.
- By laying out elements logically and strategically, designers influence users' perceptions and guide them to desired actions.

Visual Design Principles (Visual Hierarchy)

- The Benefits of Visual Hierarchy in Mobile App Design

1. Improved User Experience:

- By prioritizing important elements and organizing content in a logical and speedy manner.
- Designers can create a seamless and intuitive user experience.

2. Increased Engagement:

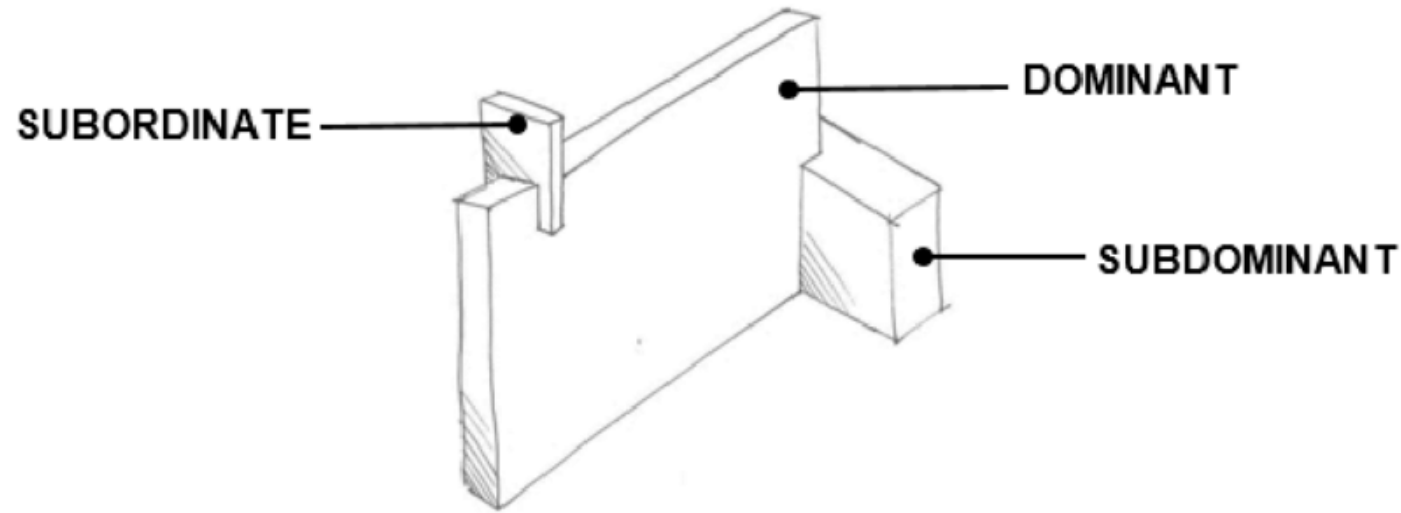
- A clear visual hierarchy can grab users' attention and encourage them to interact with different parts of the app.

3. Enhanced Usability:

- Visual hierarchy not only improves the overall look and feel of a mobile app but also enhances usability.
- Guiding users' attention to important elements

A common 3-level visual hierarchy: Dominant, Subdominant, and Subordinate

- The dominant form is typically the largest of the focus of the composition.
- The subdominant and subordinate elements are typically smaller or away from the visual centre and are used to frame and visually balance the dominant elements.

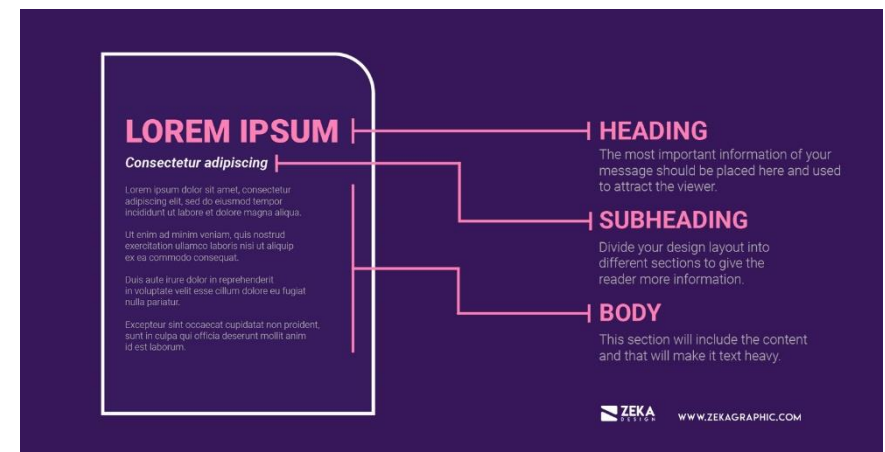
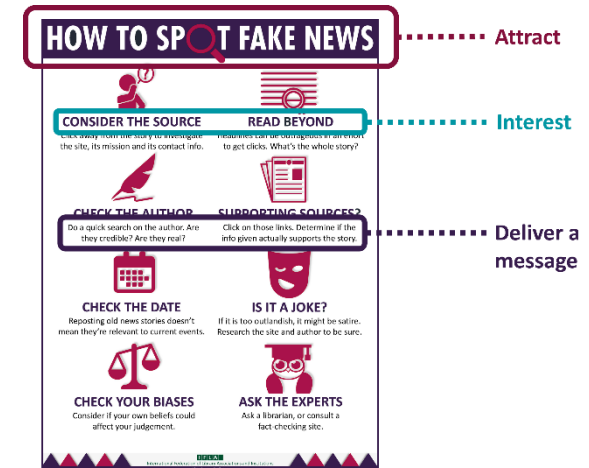


A common 3-level visual hierarchy: Dominant, Subdominant, and Subordinate

- When designing, an important task is to create a hierarchy – having an order of importance for the elements of your infographic. This directs viewers' attention and makes your information flow.
- In three levels based on how important they are to your central message. (More levels than three can confuse your message.)
- You can use font, position, and scale to emphasise these levels.

A common 3-level visual hierarchy: Dominant, Subdominant, and Subordinate

- Consistently use three font formats, one for each level.
- Generally, the most effective strategy is to keep the actual font the same but vary the size, colour, or formatting.
- The three different levels have different roles:
 - Dominant (Attract) (E.g. Heading),
 - Subdominant (Interest) (E.g. Subheading), and
 - Subordinate (Deliver a message) (E.g. Body))

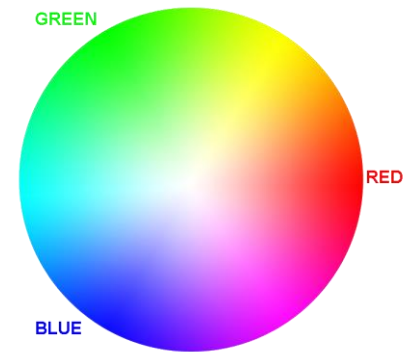
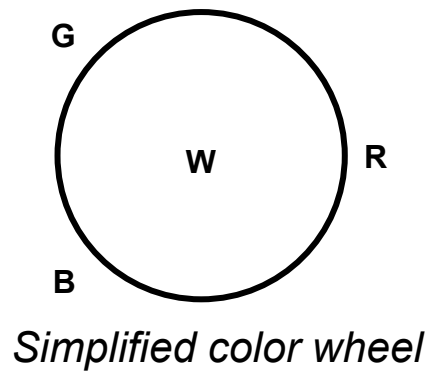


Visual Design Principles (Colour Scheme)

- Colour scheme is related to combining and matching right colours together for specific designs
 - Fewer colours may create a cleaner, more tasteful look; but “too few” may sometimes cause a lack of attraction
- Using the right colours and colour scheme
 - Helps communicating the right message
 - Evokes emotion and associations
 - Improves readability and visual appeal
 - Signals changes in context

Visual Design Principles (Colour Scheme)

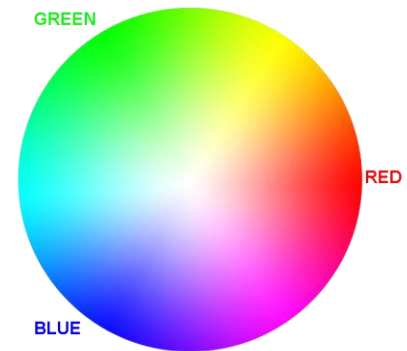
- Colour schemes are often described in terms of colour combinations on a colour wheel, typically
 - A circle with 3 primary colour (RGB) in the circumference and white (W) in the center of the circle.
- Conventional colour wheels use Red, Yellow, and Blue (RYB) as the primary colours; while Red, Green, and Blue (RGB) are mainly used as the primary colours in modern computer world



Visual Design Principles

(Colour Scheme)

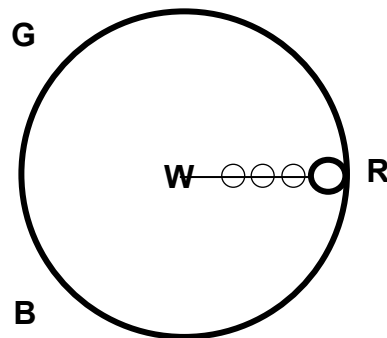
- A typical colour wheel indicates specific hues (or “colours”) around the wheel
 - Also often varying the lightness (or brightness) of specific hue, from the circumference (the most pure) towards the centre (the most impure, white)
- Some common colour schemes:
 - Monochromatic colour scheme
 - Analogous colour scheme
 - Complementary colour scheme
 - Warm and Cool colour schemes



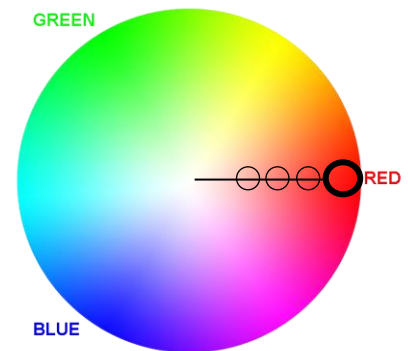
Visual Design Principles (Colour Scheme)

- Monochromatic colour scheme

- use of one color where only the value of the color changes
- Consists of different values (lightness) of a single colour (Hue)
- This colour scheme is easy to get right and can be very effective, calming and reliable
- However, lack the diversity of hues in this scheme is less vibrant compared to other schemes



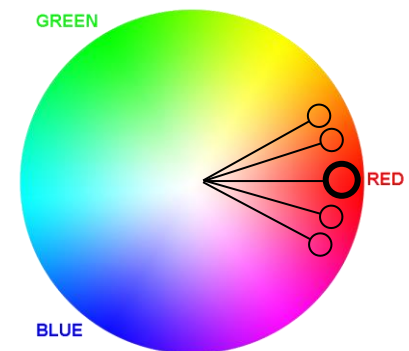
*Illustrating Monochromatic Color Scheme,
with simplified color wheel*



Visual Design Principles (Colour Scheme)

- Analogous colour scheme

- Combine colours those are adjacent to each other on the colour wheel, e.g. yellow and green
- Analogous colour schemes are often found in nature and are pleasing to the eye
- The combination of these colours gives a bright and cheery effect in the area, and is able to accommodate many changing moods
- When using the analogous colour scheme, select one as the dominant (main) colour

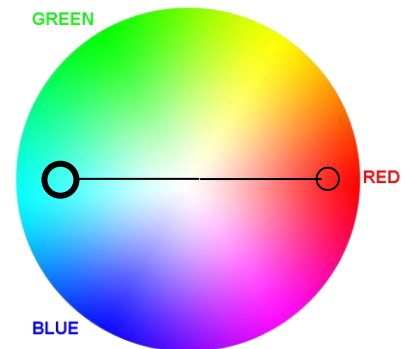


Visual Design Principles (Colour Scheme)

- Complementary colour scheme



- Combine colours that are opposite each other on the colour wheel, such as blue and yellow, red and cyan
- This scheme may provide more energetic, and even extreme feeling
- The high contrast between the colours creates a vibrant look, especially when used at full saturation, and thus may draw much attention
- Complementary colours can be tricky to use in large doses



Visual Design Principles (Colour Scheme)

- Warm colour scheme
 - Colours from red to yellow, including orange, pink, and brown
 - Due to their association with the sun and fire, warm colours represent both heat and motion
 - When placed near a cool colour, a warm colour tends to pop out, dominates, and produces a visual emphasis



Visual Design Principles (Colour Scheme)

- Cool colour scheme
 - Colours from green to blue, and can include some shades of violet
 - Cool colours can calm people down and reduce tension
 - In a design, cool colours tend to move away, making them great for backgrounds and larger elements on a page, since they would not overpower the main content



References

- Part of this slide set is prepared and extracted from the followings:
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